PLANTAE NOVAE AFRICANAE.

"Ex Africa semper aliquid novi."—*Pliny.*

SERIES IX.

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Oxalis Creaseyi, Salter (Oxalidaceae). § Lineares.

Planta pusilla sericea, 3—4 cm. alta, caule breviter exserto. *Bulbus* anguste ovoideus, apice attenuatus, ad 1·5 cm. longus, tunicis exterioribus papyraceis, brunneis. *Rhizoma* 4—6 cm. longum, squamatum. *Bulbilli* stolonum apicibus inverse positi. *Caulis* erectus, sericeus, 0·5—1 cm. longus, squamis paucis ovatis amplexicaulibus, ad 5 mm. longis, instructus. *Folia* ad caulis apicem dense imbricantia: petioli ad 6 mm. longi, exteriores subsquamiformes: foliola 3, sessilia, linearia, conduplicativo-involuta, 0·6—1 cm. longa, glauca, supra glabra, inconspicue calloso-punctata, infra adpresse sericea, ciliata, apice subacuta, manifeste cano-penicillata. *Pedunculi* uniflori, e foliorum exteriorum axillis exorientes, 3—7 mm. longi, sparse sericei, bracteis 2 linearibus, rubro-callosis, calycem imbricantibus. *Sepala* lanceolata 4—5 mm. longa, sparse pilosa, penicillata, anguste purpureo-marginata, rubro-callosa. *Corolla* fere 1·8 cm. longa, alba, tubo infundibuliforme pallide luteo: petala e basi cuneate unguiculata obovata, antice subrotundata, ad marginem anteriorem minute rubro-callosa. *Filamenta* glabra (parte connata inclusa) minora 3—7 mm., majora 6—9 mm. longa, edentata. *Ovarium* 1·5 mm. longum in dimidio superiore cano-pubescens, loculis 2-ovulatis, stylis glabris.

Hab. Namaqualand: Leliefontein district, 22 miles north-east of Garies, at the base of a rock outcrop, *Salter* 6680 (*type* in Bolus Herbarium). Flowers June.

This small species has been named in honour of my companion Mr. L. B. Creasey, who assisted me in obtaining bulbs for cultivation. It seems to be nearest in affinity to *O. furcillata*, Salter, which, however, has bifurcate leaflets. It may be recognised by its dwarf habit, greyish silky linear involute leaflets, which, like the sepals, are conspicuously albo-penicillate, and very short peduncles.

The system of vegetative reproduction is by underground stolons or "droppers" arising both from the rhizome and from near the base of the bulb and differs from that of all other South African Oxalis hitherto observed in that a protective tube is formed for the delicate ascending axis from the new bulbils. The bulbs, once they are formed at the ends

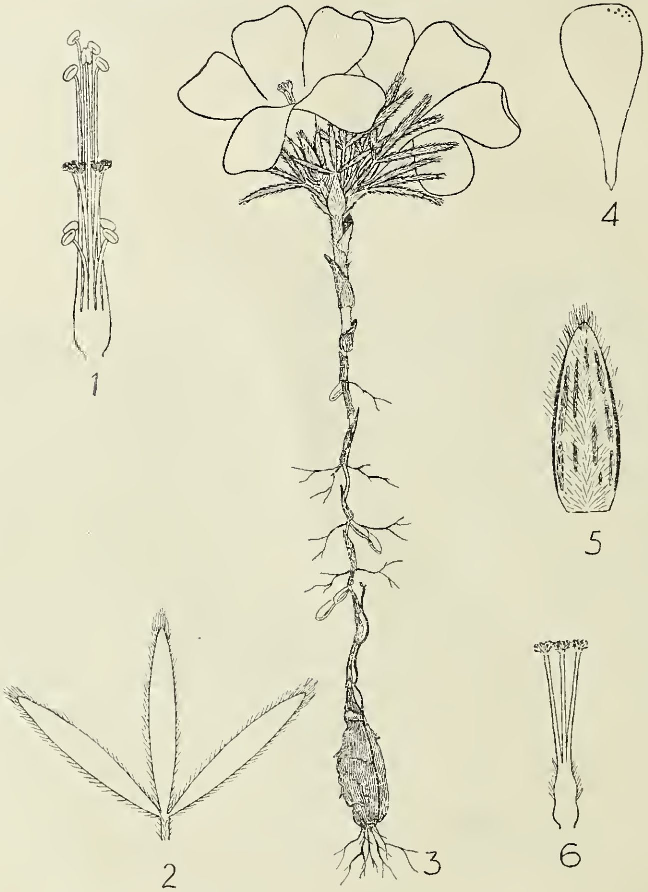

Fig. 1. *Oxalis Creaseyi* Salter. 1. Androecium × 5. 2. Leaf, upper side × 3. 3. Plant × 1½. 4. Petal × 1½. 5. Sepal × 6. 6. Gynaecium × 5. (*Salter* 6680.) *Del.* T. M. Salter.

of the droppers, are normal in their development and though their life appears to be comparatively short, it is at least 2 to 3 years.

Fig. 2A represents the root system about 3 months after flowering. Fig. 2B shows a simple diagram of the vertical structure of a bulb, the

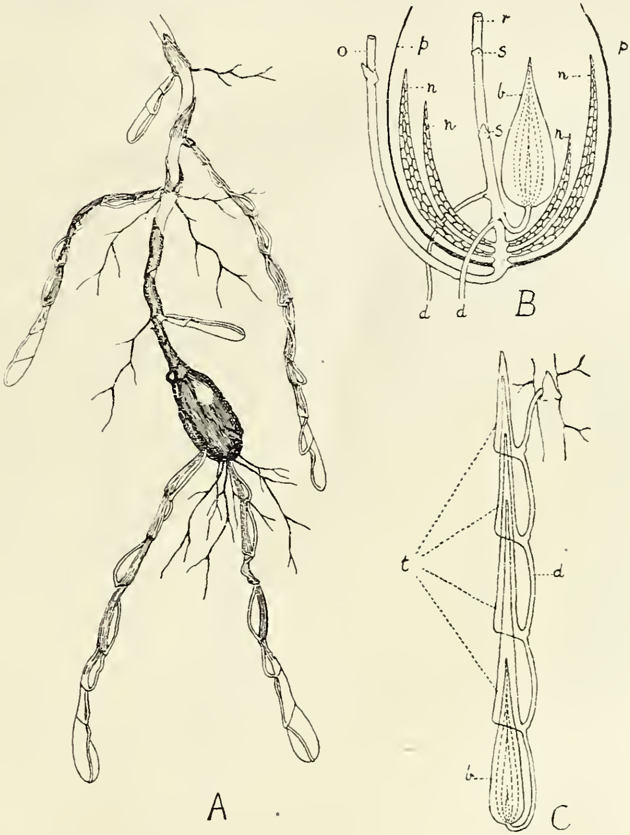

FIG. 2. The system of vegetative reproduction in *Oxalis Creaseyi*, Salter. A. Underground structure × 1½. B. Diagram of vertical section of the bulb, the parts slightly separated: *o.* withered dropper; *r.* current year's rhizome; *p.p.* layer of thin protective scales; *n.n.* exhausted nutritive scales of the current year; *d.d.* droppers; *b.* following year's bulb; *s.s.* small scales. C. Diagram showing the formation of the protective tube: *d.* dropper; *b.* bulbil; *t.* the calyptrate scales forming the tube. *Del.* T. M. Salter.

parts having been slightly separated. The bulb consists of an ascending axis (rhizome) *r*, bearing on its lower part the now exhausted nutritive scales *n*, *n* of the current year and on its upper part, within the bulb some very small scales *s*, *s*. Just above the nutritive scales are also a few undeveloped scales, one of which produces, as an axillary structure, the new or next year's bulb *b* : the others produce, each in its axil, a dropper *d*, *d*.

Above the old bulb droppers are also produced in the axils of the scales of the rhizome, i.e. on the underground portion of the stem between the apex of the bulb and the base of the aerial shoot, as shown in Fig. 2A. In the illustration of the living plant (Fig. 1) it will be seen that the upper droppers have just commenced to develop.

Each dropper is an axis which descends with the growing apex reversed, forcing down the young white bulbil which forms its apex base-first. The striking peculiarity is that from the nodes of the dropper are produced the calyptrate outer protective scales of the bulbil, one at each node and, with the downward lengthening of the internodes, these scales slip off the apex of the bulbil and are left behind in succession, deeply imbricating one another in the form of a tube (Fig. 2C.) At first the scales are very thin, white and soft, but as they receive independent nutriment from the dropper they become stouter and more leathery, soon turning brown in colour. When it reaches its final position the new bulbil *b* begins to swell rapidly and form a new bulb. The scaly tube *t*, which has been formed above it, evidently provides a protective channel for the ascending axis which it will subsequently produce, indeed, part of this tube, still attached to the previous year's dropper, can be seen on the rhizome immediately above the old bulb in Figs. 1 and 2A.

It is probable that the new shoots do not follow these channels in their entirety, but burst through them when strong enough, otherwise they would become inconveniently crowded and matted together. This congestion actually does not occur in the field, although the plants were growing fairly thickly.

Oxalis xerophila, Salter (Oxalidaceae). § Lineares.

Planta gracilis, caule exserto, 3—6 cm. alta. *Bulbus* late subuloideus in parte inferiore amplians, tunicis papyraceis imbricantibus brunneis. *Rhizoma* saepe 12 cm. longum, squamis amplexicaulibus praecipue ad apicem indutum. *Partes herbaceae* breviter pubescentes. *Caulis* gracilis, squamis vel foliis paucis parvis instructus. *Folia* 8—20, caulis apice aggregata, interdum 1—2 caulina : petioli filiformes, ad 2 cm. longi, exteriores et caulini breviores vel saepe squamiformes : foliola 3,

sessilia, lineari-oblonga vel angustissime elliptica, ad basin subcuneate angustata, minute emarginata, plus minusve conduplicativa, leviter falcata, supra glabra, eciliata. *Pedunculi* 1—4, uniflori, vix 1 cm. longi, prope apicem bibracteati: bracteae parvae, subulatae, alternantes, sicut sepala rubescentes. *Sepala* late lanceolata, ciliata, ad apicem nigrescentia. *Corolla* 1·6—2·2 cm. longa, lilacea, tubo cylindrico pubescente luteo, quam laminae parum longiore: petala e basi anguste unguiculata obovata, vel anguste obovata, 4—8 mm. lata, margine exteriore minute pubescentia et obscure pallideque viridia. *Filamenta* exteriora glabra, interiora minute glandulosa, longissima ad 1·5 cm. longa, e corollae tubo valde exserta. *Ovarium* oblongum, ad 2 mm. longum, in dimidio superiore pubescens, stylis inferne sparse pubescentibus, superne minute glandulosis. *Capsula* globosa, loculis 2-ovulatis.

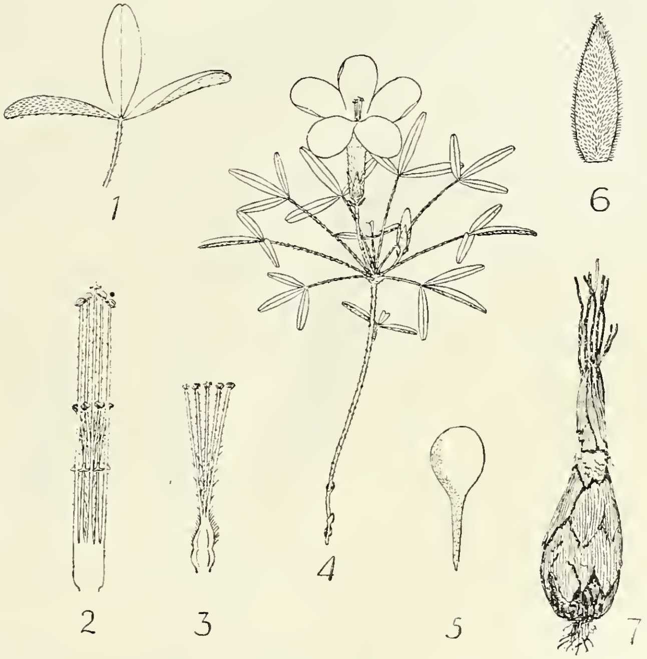

Fig. 3. *Oxalis xerophila* Salter. 1. Leaf × 2. 2. Androecium × 3. 3. Gynaecium × 3. 4. Plant, natural size. 5. Petal, natural size. 6. Sepal × 5. 7. Bulb, natural size. (*Salter* 4455.) *Del.* T. M. Salter.

Hab. Cape Province: Calvinia Div.; 1 mile north of Calvinia, *Salter* 4468 (*type* in Bolus Herbarium); 22 miles north of Downes Station, 4455. Flowers May.

This species falls into the same section as *O. linearis*, Jacq. and *O. arcuata*, Jacq., the latter species being only known from Jacquin's cultivated specimen of unknown origin. This section is characterised principally by the rather long cylindrical hairy corolla tube. *O. xerophila* differs from the former (a rather roughly hirsute plant) in its soft minute pubescence and in the shape of the leaflets, and from the latter (in which, *fide* Jacquin, the stamens are barely exserted from the tube), in having markedly protruding stamens (or styles) and from both these species in its elongate bulb.

Fig 3 has been drawn from a plant cultivated from bulbs of *Salter* 4455 and, as is often the case in cultivation, the specimen is rather longer in all parts than the average wild specimens, which struggle for existence in the arid country around Calvinia. (v.v.s., v.v.c).

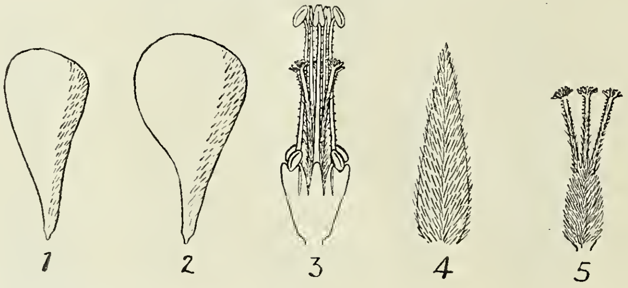

Fig. 4. *Oxalis lanata* L.f. (white) petal × 1½. 2. *O. lanata*, var. *rosea* petal × 1½. 3. Androecium × 5. 4. Sepal × 5. 5. Gynaecium × 5. *Del.* T. M. Salter.

Oxalis lanata, L.f., var. **rosea,** Salter (Oxalidaceae). § Obcordatae. Var. nov. A forma typica ita differt: *Petala* rosea, latiora, e basi distincte unguiculata, superne obovata, 1·5—3 cm. longa. *Foliorum* color viridis leviter obscurior. *Ovarium* 3—5-ovulatis.

Hab. Cape Province: Cape Peninsula; Wynberg Hill near Kirstenbosch, *Salter* 992, *F. Bolus*, Bol. Herb. 22159 (*type*): Somerset West Div.; Sir Lowry Pass, *Salter* 3289, *Schlechter* 4802 (erroneously attributed by R. Knuth to *O. truncatula*, Jacq.). Steenbras, *Salter* 4743: Caledon Div.; French Hoek Pass, *Salter* 6214, *Leipoldt*, Bol. Herb. 22160: Worcester Div.; Bain's Kloof, *Salter* 4777, 6833; Paarl Div.; Bushman's Castle, *Salter* 6888, 6889: Tulbagh Div.; Tulbagh Road Station, *Guthrie* 2021, Artois, *Bolus* 7577. Flowers May—Oct. (usually Aug.—Oct.).

In this variety, in addition to the rose-red corolla, the petals are unguiculate in the lower half and wider above than those of the typical white-flowered form which are almost cuneate in shape (Fig. 4.). The bulb is ovoid (or in some mountain forms narrow-ovoid), beaked at the apex with more or less lanate tunics. The two forms have only once been observed growing in association.

Oxalis lanata, L.f. with virescent flowers.

This curious teratological variety (Fig. 5), which has leaf-like sepals and petals, occurs in great abundance in a plantation bordering on the Kirstenbosch estate near the Bolus Herbarium, but it is limited to an area of about an acre. Both the typical white-flowered form of *O. lanata*, L.f. and also a rose-coloured variety (var. *rosea*, Salter), differing only in their perfect flowers and rather longer peduncles, are plentiful on open ground about 100 yards away, but only a few flowering plants of var. *rosea* have been found in the plantation referred to.

The plants are thickly spread, sometimes forming carpets, but they only flower at all readily in the more open parts of the plantation. None, however occur on the open ground around.

Both the sepals and petals are densely pubescent and are bordered with a row of orange-coloured calli along the anterior margin. The sepals are entirely green, but the petals, which have a rather thick fleshy claw, are obscurely purple-maculate on the upper surface. All the flowers are of the medio-stylar form. The anthers, unlike those of the typical form, are tipped with a small tuft of hairs and have pollen sacs in their lower halves only and contain pollen grains which are shrunken and abortive. Although there appear to be no stigmas on the densely hirsute tapering styles, the ovules (3 in each chamber) are normal.

It seems evident that normal pollination never occurs and after a prolonged search I have failed to find any plants setting seed. It may therefore be concluded that propagation only takes place by vegetative means, *i.e.* by the slow process of spreading from the bulbilli, which, it may be noted, are produced in an almost sessile position on the rhizome and not on long lateral runners or underground stolons as is the case in some species in the genus.

The species *O. lanata* is peculiar in that it is often affected by a species of smut which attacks the anthers and bulbs, but the plants appear to be otherwise healthy. Var. *rosea* is not, of course, nearly so common as the typical white-flowered form, yet it seems to be more prone to infection. The virescent form is, as far as is known, entirely free from it. When the corollas are wide open in a strong light, infected plants can often be detected from a distance of several feet by the dark brown appearance of the anthers.

I have not, so far, observed this smut on any other South African species of Oxalis.

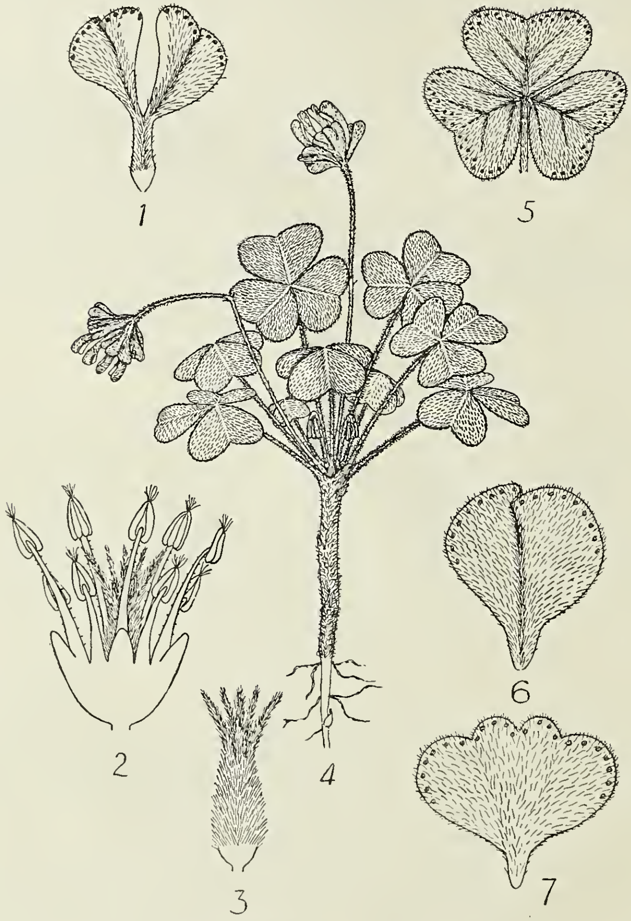

FIG. 5. *Oxalis lanata* L.f. with virescent flowers. 1. Petal × 4. 2. Androecium × 8. 3. Gynaecium × 8. 4. Plant × 2. 5. Leaf (under side) × 2. 6 and 7. Sepals × 4. (*Salter* 6163.) *Del.* T. M. Salter.